127 Characterization of bacteria isolated from the respiratory tract of pediatric cystic fibrosis patients followed in a CF specialized center

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Objectives: Respiratory infections occur early in life of patients with Cystic Fibrosis (CF). Bacterial respiratory colonization has been associated with increased morbidity and mortality in these patients. This study aims to evaluate the prevalence of bacteria isolated from the respiratory tract in patients followed at a Specialized Center of CF (Lisbon) in the last 5 years.
Methods: Retrospective analysis of patients followed in the CF Center, between 2008 and 2012. Epidemiological and bacteriological data were evaluated.
Conclusion: Sixty four patients (34 females) were evaluated with a median age of 11 years. MSSA was the most frequently isolated bacteria during the five years of the study, followed by PA. In general, 2012 was the year with lower prevalence of chronic colonization by pathogenic bacteria. The exceptions were two bacteria of uncertain clinical significance (SM and AX) (see table). Segregation of patients by colonization was strictly followed. The rate of patients taking inhaled AB was maintained over the time.

	Bacterial Isolation/Chronic colonization (%)				
	2008	2009	2010	2011	2012
Pseudomonas aeruginosa (PA)	45.3/26.4	47.3/27.3	56.9/24.1	57.1/19.6	40.4/12.3
Burkholderia cepacia complex (BC)	13.2/7.5	9/1.8	12/6.9	14.3/7.1	8.8/5.3
Staphylococcus aureus					
Methicillin-sensitive (MSSA)	69.8/34	70.9/34.5	70.7/44.8	66/44.6	68.4/31.6
Methicillin-resistant (MRSA)	13.2/5.7	16.3/5.5	19/8.6	10.7/7.1	10.5/5.3
Stenotrophomonas maltophilia (SM)	5.7/0	9/0	10.3/0	7.1/1.8	7/3.5
Achromobacter xylosoxidans (AX)	1.9/0	1.8/0	3.4/1.7	3.6/1.8	14/3.5

In conclusion, the prevalence of bacterial colonization varies over the years. The results reinforce the importance of the transmission control measures according to the type of bacterial colonization.

128 Differences in lower airway infection rates between AREST CF study centres

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Objectives: To compare rates of lower respiratory infection in pre-school children with CF at two centres sharing similar approaches to treatment and use of antimicrobial prophylaxis.
Methods: Bronchoalveolar lavage fluids (n = 997) obtained from Melbourne-(MEL) and Perth-based (PER) participants of the AREST CF early disease surveillance program between January 2006 and September 2012 underwent diagnostic microbiological examination.
Results: Both centres performed a similar number of tests each year (MEL 67.7, PER 74.7; $p = 0.46$ paired t test). Although both study groups were of a similar age (MEL 2.7 yrs, PER 3.3 yrs; $p = 0.10$), the Melbourne cohort had more males (62% vs 44% PER; $p = 0.001$) and children homozygous for ΔF508 (60% vs 48% PER; $p = 0.002$), but fewer patients identified by newborn screening (62% vs 90% PER; $p < 0.0001$). The Melbourne cohort also had more culture-positive tests (54% versus 28%, per year on average; $p = 0.007$), with a higher annual incidence of *A. fumigatus* (9% MEL; 4% PER), *E. coli* (5% MEL; 1% PER), *H. influenzae* (14% MEL; 5% PER), mixed oral flora (66% MEL; 28% PER) and *S. aureus* (18% MEL; 6% PER).
Conclusion: Reports of culture-positivity were below the national average for both centres, which may reflect sampling methods that estimated incidence rather than prevalence of lower respiratory infection. Differences in infection rates between CF centres were identified and could be due to subtle differences in treatment protocols, the analytical and reporting procedures used by the respective diagnostic laboratories or genuine geographical differences in the incidence of early lower respiratory infection.

129 *Pseudomonas aeruginosa* infecting lung-transplanted cystic fibrosis patients: A longitudinal study

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Objectives: Respiratory failure is the most important cause of death in cystic fibrosis (CF) patients, and lung transplantation (LT) is one treatment option for end-stage pulmonary disease. *Pseudomonas aeruginosa* (PA) is the most common bacterial pathogen responsible for CF pulmonary infection. The goal of this study was to molecularly characterize PA strains responsible for pulmonary infection before and after bilateral LT.
Methods: Fifty-two PA strains were collected over 13-years (1998–2010) from respiratory samples of three CF patients, 42 strains before and 10 after LT. Molecular typing was performed using BOX-PCR, data analysis using Gel Compare II (Applied Maths, Belgium).
Results: Patient (PT) A provided 18 strains before and 4 strains after LT. Before LT, two different clones were detected, replaced by a third clone maintained after LT. PT B provided 9 strains before and 4 strains after LT: different genotypes were detected, one clone replaced the others and was maintained after LT. PT C supplied 9 strains before LT and 4 after, all belonging to the same clone.
Conclusion: These data seem to describe that the single clone leading to the clinical condition requiring LT persisted after surgery. In order to obtain a more detailed and exhaustive picture, the number of both patients and strains before and after LT should be increased. Multi Locus Sequence Typing could be performed to highlight the presence of particular PA clones. These preliminary data suggest that more studies are required.

130 Chronic infection with *Pseudomonas aeruginosa* in cystic fibrosis – A risk factor for nasal polyposis after lung transplantation

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Background: Nasal polyposis (NP) is common in cystic fibrosis (CF) patients. The prevalence of the CF phenotype with NP after lung transplantation (LTx) is unknown. Risk factors for the development of NP after LTx are not well described.
Methods: CF patients with LTx at our centre between November 1992 and December 2009 were included. They were regularly investigated with nasal endoscopy and aspiration of sinus secretions with microbiological evaluation. Patients with and without development of NP were compared along the following parameters: gender, age, dF508, diabetes, acute rejection, NP at LTx and microbiology of the sinuses before and after LTx. A multivariate cox regression analysis was performed.
Results: The study included 94 patients; 21 were excluded due to incomplete data. Thirty-five (48%) of the remaining 73 patients developed NP. Mean time to diagnosis of NP was 4.2 (2.9–5.6) years after LTx. Prevalence of NP was 11% after the first year and 18%, 33% and 44% after the first two, five and ten years, respectively. Patients with post-transplant NP were younger, had NP before LTx and were chronically infected with *Pseudomonas aeruginosa* (PA) in the nose. Multivariate analysis demonstrated that chronic infection with PA was the only significant risk factor for the development of nasal polyps after lung transplantation (HR 4.812, 95%CI 1.466–15.792, $p = 0.01$).
Conclusions: In contrast to pre-transplant patients, NP is more common after LTx. Development of NP occurs throughout the whole observation time. Chronic sinonasal PA infection seems to be the only significant risk factor for NP after LTx.